

MLRS CRD Pilot Implementation



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Introduction

- To insure that the Consolidated laser Ranging Data (CRD) format is viable, a pilot implementation at a laser station was required
- The method of implementation is quite station-dependent, and can lead to system improvements
- Several format modifications and lessons resulted

MLRS Implementation Alternatives

- Convert to CRD at the end of processing
 - Quick and easy
 - Could lose benefits of new format
- Convert acquisition raw data (“log”) files to CRD
 - More work; does not interfere with operations
 - Gain most of benefits of new format
- Make CRD acquisition raw data file format
 - Lots of work,
 - Can interfere with operations

Middle Path

- Convert raw data file to CRD while breaking into separate passes
- Modify the following software for CRD format
 - Log decoding
 - Preliminary filtering
 - Normalpointing
 - Calibration processing
 - Quality Assessment
 - Post processing
- SLR and LLR

Advantages of CRD at MLRS

- Replace multiple old formats with CRD:
 - LMT, Merit II Full Rate, Lunar Fullrate, Sampled Engineering, Normalpoint
- Create one set of read/write routines
- New data fields: Return rate, Skew, etc.
- Flexible format allowed carrying data in MLRS-specific record types internally
- Eliminated several lunar-format-specific programs

Caveats

- Record sequences need special attention
 - E.g., probably want met record before obs record
 - Need to remember mets, angles, etc. until they change
 - Need to be flexible
- Avoid white space in free-format character fields
- Processing results (e.g. normal points) may differ due to precision or procedure changes

Summary

- MLRS is now ready to produce CRD data
- Advantages of new format outweigh pain of implementation
- Record sequencing can be a challenge